CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 87-073

NPDES NO. CA0005134

WASTE DISCHARGE REQUIREMENTS FOR:

CHEVRON USA, INC., RICHMOND REFINERY,
CHEVRON CHEMICAL COMPANY, RICHMOND PLANT, and
GENERAL CHEMICAL CORPORATION, RICHMOND WORKS,
RICHMOND, CONTRA COSTA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter called the Board) finds that:

1. Chevron USA, Inc., Richmond Refinery, submitted an NPDES Permit application (Report of Waste Discharge) dated December 17, 1986 for reissuance of NPDES Permit No. CA0005134.

2. General Chemical Corporation (formerly Allied Chemical Corporation), Richmond Works, submitted an NPDES Permit application (Report of Waste Discharge) dated May 1, 1981 and amended it by a letter dated July 15, 1982 also for reissuance of NPDES Permit No. CA0005134.

3. The discharge of wastewater from the Chevron USA and General Chemical facilities is currently regulated by Waste Discharge Requirements, Order No. 85-26, adopted by the Board on February 20, 1985, and amended by Order No. 86-6 adopted by the Board on February 19, 1986 and Order No. 86-72 adopted by the Board on September 17, 1986.

4. Chevron Chemical Company, Richmond Plant, submitted an NPDES Permit Application (Report of Waste Discharge) dated May 11, 1987 for reissuance of NPDES Permit No. CA0005061.

5. The discharge of wastewater from the Chevron Chemical Co. facility is currently regulated by Waste Discharge Requirements, Order No. 85-27 adopted by the Board on February 20, 1985.

6. Chevron USA operates a petroleum refinery with a crude-run throughput of 256,000 barrels per day. This refinery has a crude-run capacity of 365,000 barrels per day. It manufactures fuels, lubricants, asphalt, and petrochemicals and is classified as an integrated refinery as defined by the U.S. Environmental Protection Agency in 40 CFR 419.50. Treated process wastewater, stormwater runoff, and other wastes as described below are discharged into Castro Creek at a point 500 yards from its confluence with Castro Cove, an embayment of San Pablo Bay, a water of the United States.

7. General Chemical Corp. manufactures sulfuric acid and oleum, using alkylation acid and spent sulfuric acid from the refinery as part of its raw material. General Chemical Corp. discharges its wastewater to the Chevron USA wastewater system for treatment.

8. Chevron Chemical Company, Ortho Division, Richmond Plant manufactures fertilizers, pesticides, fungicides, herbicides, and fuel additives. Exhaust gas scrubber blowdown from an incinerator is discharged to the Chevron USA wastewater system.

9. Chevron USA, Inc., Chevron Chemical Co., and General Chemical Corp. are hereinafter referred to as the Discharger.

10. The reports of waste discharge and recent self-monitoring reports describe the discharges as follows:

a. Waste 001 averages 13.8 million gallons per day (mgd) and consists mainly of refinery process wastewater from Chevron USA which has been treated in aerated lagoons and oxidation ponds. Waste 001 may contain once-through cooling water that has become contaminated and then diverted to the wastewater treatment plant. (Sanitary wastes are discharged to the municipal wastewater collection system.) Waste 001 includes the 0.072 mgd of wastes from General Chemical Corp. consisting of cooling tower blowdown, boiler blowdown, steam condensate, plant washings and stormwater. Waste 001 will include Waste 004 (described below) which will be routed through the Chevron USA wastewater treatment system after November 1, 1987.

b. Waste 002 consists of approximately 44 mgd of thermal waste (once-through cooling water) from Chevron USA. Waste 002 is discharged into Castro Creek, a tributary of San Pablo Bay, at a point approximately 500 yards downstream of its confluence with Wildcat Creek.

c. Waste 003, between July 1, 1987 and November 1, 1987, is the combined discharge of Waste 001 and Waste 004 (described below). Waste 003 is discharged currently into Castro Creek along with Waste 002 via the 250 ft. Channel. Upon completion of construction of a deep water outfall, Waste 003 will be discharged into San Pablo Bay 1800 feet offshore to the north of Point San Pablo. After November 1, 1987 Waste 003 will be equivalent to Waste 001.

d. Waste 004 is the discharge of 0.18 mgd of exhaust gas scrubber blowdown from the Chevron Chemical Company incinerator. Waste 004 currently receives no further treatment after leaving the incinerator. The Discharger will route Waste 004 to the Chevron USA wastewater treatment system by November 1, 1987.

e. Waste 005 consists of non-contaminated stormwater runoff from the tank farm area tributary to a sump labeled "#380". Waste 005 is discharged into San Francisco Bay at outfall location E-005 on the attached location map. An average of twelve discharges of stormwater runoff occur during the rainy season each year. Each discharge averages 0.42 million gallons.

f. Waste 006 consists of non-contaminated stormwater runoff from the tank farm area tributary to a sump labeled "#381". Waste 006 is discharged into San Francisco Bay at outfall location E-006 on the attached location map. An average of eleven discharges of stormwater runoff occur during the rainy season each year. Each discharge averages 0.63 million gallons.

g. Waste 007 consists of non-contaminated stormwater runoff from the tank farm area tributary to a sump labeled "Horse pasture sump". Waste 007 is discharged into San Francisco Bay at outfall location E-007 on the attached location map. An average of seven discharges of stormwater runoff occur during the rainy season each year. Each discharge averages 0.38 million gallons.

h. Waste 008 consists of an indeterminate amount of non-contaminated stormwater runoff from the plant area that is segregated in the 50/100 ft. Channel. New outfall location E-008 on the attached location map is proposed for the discharge of this segregated stormwater to the 250 ft. Channel.

i. Waste 009 consists of an indeterminate amount of non-contaminated stormwater runoff from the A-Basin tank field area. New outfall location E-009 on the attached map is proposed for the discharge of Waste 009 to San Francisco Bay.

j. Waste 010 consists of an indeterminate amount of non-contaminated stormwater runoff from the No. 5 Sump area. New outfall location E-010 is proposed for the discharge of Waste 010 to the 250 ft. Channel.

k. Waste 011 (formerly Waste 001 and Waste 002 in Board Order No. 85-27) consists of an indeterminate amount of contaminated stormwater runoff from areas of the Chevron Chemical Pesticide and Chemical Plant which contain pesticide, herbicide, and heavy metal contaminates and areas of the Chevron Chemical Difolatan Plant which contain contaminates of fungicide origin. Such areas are transfer stations, process areas, storage and loading areas, and contaminated roof tops. Waste 011 is collected in Castro Acres Surge pond located along the east side of Castro Street and is pumped to ponds west of Castro Street. Water from these ponds is not permitted to be discharged to surface waters. These ponds are regulated by a separate Board order. Waste 011 is discharged from Castro Acres Surge pond into waters of the state via a drainage ditch on the east side of Castro Street which flows into Castro Creek, during periods of high intensity rainfall only.

l. Waste 012 (formerly Waste 003 in Board Order No. 85-27) consists of an indeterminate amount of contaminated stormwater runoff from areas of the Chevron Chemical Fertilizer Plant which contain pollutants of nitogen, phosphorous, and potassium fertilizers. Such areas are transfer stations, process areas, storage and loading areas, and contaminated roof tops. Waste 012 is discharged currently to evaporation ponds west of Castro Street. Water from these ponds is not permitted to be discharged to surface waters. These ponds are regulated by a separate Board order. Waste 012 is discharged into waters of the state via a drainage ditch on the west side of Castro Street which flows into Castro Creek, during periods of high intensity rainfall only.

11. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on December 17, 1986, and the State Water Resources Control Board approved it on May 21, 1987. The provisions of this permit are consistent with the revised Basin Plan.

12. San Pablo Bay is suspected to be a water quality limited receiving water segment, but more data are necessary to make a final determination.

13. The beneficial uses of Castro Creek, Castro Cove, and San Pablo Bay are:

    a. Water contact recreation
    b. Non-contact water recreation
    c. Navigation
    d. Ocean commercial and sport fishing
    e. Wildlife habitat
    f. Estuarine habitat
    g. Fish spawning and migration
    h. Industrial process and service supply
    i. Preservation of rare and endangered species
    j. Shellfishing

14. Order No. 85-26 included a prohibition of discharge of Waste 001 and Order No. 85-27 included a prohibition of discharge of Waste 004 into Castro Creek or Castro Cove or at any place where it does not receive a minimum dilution of at least 10 to 1 after July 1, 1987.

15. The Discharger submitted an application in October 1985 for a Conditional Use Permit to the City of Richmond for a proposed Deep Water Outfall Project which would allow the Discharger to comply with the July 1, 1987 prohibition identified in Finding No. 14.

16. The City of Richmond, designated as the Lead Agency, determined that the project would require an Environmental Impact Report (EIR) to meet the California Environmental Quality Act stipulations. The Board acted as a Cooperating Lead Agency at the request of the City of Richmond.

17. The City of Richmond certified the final EIR on March 12, 1987. The EIR determined that relocating the discharge out of Castro Cove will immediately eliminate significant impacts in waters of Castro Cove and Castro Creek; and that the location designated as Alternative One is the best location for the deep water outfall project because it has the best combination of the most beneficial effects and fewest negative impacts. The Alternative One discharge point is located in San Pablo Bay 1800 feet offshore to the north of Point San Pablo.

18. The studies performed as part of the EIR revealed that the discharge has toxic components that may potential for continuing impacts on San Pablo Bay and San Francisco Bay aquatic habitats.

19. The EIR included recommendations for mitigation measures aimed at determining the sources of the toxic components in the discharge followed by implementation of source control and treatment to eliminate the impacts noted in the EIR.

20. The Board adopted Resolution No. 87-0004 on March 18, 1987 which indicated its intent to require the Discharger to relocate its discharge to the location designated as Alternative One and to implement the mitigation measures recommended in the EIR.

21. This Order includes effluent limitations, receiving water limitations, discharge prohibitions, and provisions which implement the mitigation measures recommended in the EIR.

22. The Discharger has indicated its intent to implement the mitigation measures recommended in the EIR. In addition, the Discharger has committed to replacing three of its existing, oil/water separators (Nos. 1, 2, and 15) with two larger ones (Nos. 1A and 2A) by November 1, 1987.

23. Chevron USA is replacing up to 3 mgd of San Francisco Bay water which is used as firewater with recycled treated wastewater, Waste 003. In addition to use during fires, this water is used in the process areas and is recycled back into the wastewater treatment system. This replacement of the firewater will be completed by January 1, 1988.

24. The State Board, on September 18, 1975, amended the Water Quality Control Plan for Control of Temperature in the Coastal Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan). The Thermal Plan requires that existing thermal waste discharges comply with limitations necessary to assure protection of beneficial uses.

25. The State Board, on May 16, 1974, adopted Resolution No. 74-43, which prescribed a Water Quality Control Policy for the Enclosed Bays and Estuaries of California. This policy states in part:

> "Waste discharges shall not cause a blockage of zones of passage required for the migration of anadromous fish."

This policy also states in part:

> "Persistent or cumulative toxic substances shall be removed from the waste to the maximum extent practicable through source control or adequate treatment prior to discharge."

26. Wildcat Creek historically supported runs of steelhead trout, an anadromous fish. Efforts are currently in progress to restore the physical conditions in Wildcat Creek such that it may once again support a steelhead trout fishery.

27. The discharge of Waste 002 contains a combination of chemical pollutants, heat, and salinity which cause a blockage to the migration of steelhead trout upstream into Wildcat Creek.

28. On February 20, 1986 the State Water Resources Control Board adopted Order No. WQ 86-4 which required this Board to amend the Discharger's NPDES permit to include concentration limits on Waste 001 for conventional pollutants and metals based on BAT. The Order also required the Board to set effluent limits for metals based on water quality if the Discharger did not relocate its discharge of Waste 001 from Castro Cove by July 1, 1987.

29. This Order implements the requirements of State Board Order No. WQ 86-4.

30. The issuance of waste discharge requirements for this discharge is exempt from the provisions of Chapter 3 (commencing with Section 21110) of Division 13 of the Public Resources Code (CEQA) pursuant to Section 13389 of the California Water Code.

31. Effluent limitation and toxic effluent standards established pursuant to Sections 208(b), 301, 304, and 307 of the Federal Water Pollution Control Act and amendments thereto are applicable to the discharge.

32. Effluent limitation guidelines requiring the application of best available technology economically achievable (BAT) have been promulgated by the U.S. Environmental Protection Agency for the Integrated Subcategory of the Petroleum Refining Point Source Category 40 CFR Part 419 on October 18, 1982 and amended on July 12, 1985. Effluent limitations of this Order are based on these guidelines, the Basin Plan, other State plans and policies, current plant performance, and best engineering judgement. The limitations are considered to be those attainable by BAT in the judgement of the Board. (EPA has not proposed BAT regulations for wastewater discharges from sulfuric acid plants such as General Chemical.)

33. Under 40 CFR 122.44, "Establishing Limitations, Standards, and Other Permit Conditions," NPDES permits should also include toxic pollutant limitations if the discharger uses or manufactures a toxic pollutant as an intermediate or final product or byproduct. This permit may be modified prior to the expiration date, pursuant to 40 CFR 122.62 and 124.5, to include effluent limitations for toxic constituents determined to be present in significant amounts in the discharge through a more comprehensive monitoring program included as a part of this Order.

34. This Order contains effluent limits based on recent production rates at this facility. The Board is aware that production can vary and will expedite reissuance of a new permit pursuant to 40 CFR 122.62 and 124.5 upon receipt of an application with new production data.

35. The Board has notified the discharger and interested agencies and persons of its intent to reissue waste discharge requirements for the discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

36. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the discharger, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Federal Water Pollution Control Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. Effluent Limitations

1. The discharge of Waste 001 containing constituents in excess of the following limits is prohibited:

Constituent	Units	Monthly Average	Maximum Daily
BOD (5-day @ 20°C)	lbs/day	3550	6690
	kg/day	1610	3040
TSS	lbs/day	2920	4590
	kg/day	1330	2090
TOC	lbs/day	7810	14700
	kg/day	3550	6680
Oil and Grease	lbs/day	1110	2090
	kg/day	504	950
	mg/l	8	15
Phenolic Compounds	lbs/day	16.6	48.4
	kg/day	7.54	22.0
	mg/l	0.17	0.35
Ammonia as N	lbs/day	1310	2870
	kg/day	595	1300
	mg/l	9	20
Sulfide	lbs/day	19.4	42.9
	kg/day	8.82	19.5
	mg/l	0.14	0.31
Total Chromium	lbs/day	19.4	55.6
	kg/day	8.82	25.3
	mg/l	0.21	0.60
Hexavalent Chromium	lbs/day	1.59	3.56
	kg/day	0.72	1.62
	mg/l	0.028	0.062
Settleable Solids	ml/l-hr	0.1	0.2

2. In addition to the 30-day average and daily maximum pollutant weight allowances shown in A.1, allocations for pollutants attributable to stormwater runoff discharged as a part of Waste 001 are permitted in accordance with the following schedules:

STORMWATER RUNOFF

Constituent	Units	Monthly Average	Maximum Daily
BOD (5-day @ 20°C)	mg/l	26	48
TSS	mg/l	21	33
TOC	mg/l	57	106
Oil and Grease	mg/l	8	15
Phenolic Compounds	mg/l	0.17	0.35
Total Chromium	mg/l	0.21	0.60
Hexavalent Chromium	mg/l	0.028	0.062

The total effluent limitation for the discharge is the sum of the stormwater runoff allocation and the mass limits contained in A.1. The total effluent limitation (both maximum and average) is to be computed at the discretion of the discharger on a monthly basis as shown in Part B of the Monitoring Program.

3. The discharge of Waste 001 containing constituents in excess of the following limits is prohibited:

Constituent	Units	Monthly Average	Maximum Daily
Arsenic	ug/l		200
Cadmium	ug/l		13
Chromium	ug/l	47 *	47 *
Copper	ug/l		30 *
Cyanide	ug/l		25
Lead	ug/l		56
Mercury	ug/l		1
Nickel	ug/l	134 *	194 *
Selenium	ug/l	26	45
Silver	ug/l		23
Zinc	ug/l	141 *	157 *
Phenols	ug/l		500

Constituent	Units	Monthly Average	Maximum Daily
PAHs **	ug/l		150

* The Board will consider modifying these technology based limits if the Discharger demonstrates that the routing of Waste 004 to the wastewater treatment system significantly affects the quality of Waste 001.

** Polynuclear Aromatic Hydrocarbons

4. After July 1, 1988 the discharge of Waste 001 containing constituents in excess of the following limits is prohibited:

Constituent	Units	Monthly Average	Maximum Daily
Nickel	ug/l		71

5. The discharge of Waste 002 shall not contain a TOC concentration above intake levels in excess of 5 mg/l.

6. Waste 002 shall not have a pH less than 6.5 nor greater than 8.5.

7. Waste 003 shall not have a pH less than 6.0 nor greater than 9.0.

8. The survival of test fishes in 96 hour bioassays of the discharge of Waste 003 shall not be less than 50 percent.

9. Until November 1, 1987, the discharge of Waste 004 containing constituents in excess of the following limits is prohibited.

Constituent	Units	Monthly Average	Maximum Daily
BOD (5-day @ 20°C)	lbs/day	80	338
	kg/day	36	154
TSS	lbs/day	83	125
	kg/day	38	57
TOC	lbs/day	52	116
	kg/day	23	53
Phenolic Compounds	lbs/day	0.13	0.36
	kg/day	0.06	0.16
Ammonia as N	lbs/day	63	94
	kg/day	28	43

10. The discharge of Waste 004 containing constituents in excess of the following limits is prohibited:

Constituent	Units	Monthly Average	Maximum Daily
Total Pesticides *	lbs/day	0.22	0.45
	kg/day	0.10	0.20

* Total pesticides shall be determined by measuring Difolatan and Orthene.

11. The discharge of Wastes 005, 006, 007, 008, 009, and 010 containing constituents in excess of the following limits is prohibited:

Constituent	Units	Maximum Daily
Oil and Grease	mg/l	15
TOC	mg/l	110
pH	pH units	6.5-8.5
Visible oil	observation	none
Visible color	observation	none

12. If the discharger does not relocate its discharge of Waste 003 from Castro Cove by July 1, 1987, the combined discharge of Waste 002 and Waste 003 containing constituents in excess of the following limits is prohibited:

Constituent	Units	Maximum Daily
Cadmium	ug/l	10
Hexavalent Chromium	ug/l	11
Copper	ug/l	20
Cyanide	ug/l	25
Lead	ug/l	5.6
Mercury	ug/l	1
Nickel	ug/l	7.1
Selenium	ug/l	10
Zinc	ug/l	58

B. Receiving Water Limitations

1. The discharge of wastes shall not cause the following conditions to exist in waters of the State at any place at levels that cause nuisance or adversely affect beneficial uses:

   a. Floating, suspended, or deposited macroscopic particulate matter or foam;

   b. Bottom deposits or aquatic growths;

   c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;

   d. Visible, floating, suspended, or deposited oil or other products of petroleum origin;

   e. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.

2. The discharge of wastes shall not cause the following limits to be exceeded in waters of the State in any place within one foot of the water surface:

   a. Dissolved oxygen: 5.0 mg/l minimum. The median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation.

   b. Dissolved sulfide: 0.1 mg/l maximum.

   c. pH: The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH levels by more than 0.5 units.

   d. Un-ionized ammonia (as N): 0.025 mg/l Annual Median,
      0.16 mg/l Maximum at any time.

3. The discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Board or the State Water Resources Control Board as required by the Federal Water Pollution Control Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Federal Water Pollution Control Act or amendments therto, the Board will revise and modify this Order in accordance with such more stringent standards.

C. Prohibitions

1. The discharge of Waste 001 and Waste 004 at any place where they do not receive a minimum initial dilution of at least 10:1 or into Castro Creek or Castro Cove is prohibited after July 1, 1987.

2. The discharge of Waste 002 to Castro Creek or areas where it causes a blockage of zones of passage required for the migration of anadromous fish into Wildcat Creek is prohibited.

3. The discharge of Wastes 008, 009, and 010 is prohibited except when it has been demonstrated to the satisfaction of the Executive Officer that they contain only non-contaminated stormwater runoff. Upon a satisfactory demonstration, discharges of the wastes must comply with Effluent Limitation A.11.

4. The discharge of Waste 011 to waters of the State is prohibited except as provided under the following conditions:

   During any wet season in which a rainfall event occurs which yields a 24-hour precipitation with a return frequency of once in 25 years, an amount of Waste 011 may be discharged equal to that attributable to the precipitation occurring in excess of the 25-year rainfall event.

5. The discharge of Waste 012 to waters of the State is prohibited except as provided under the following conditions:

   During any wet season in which a rainfall event occurs which yields a 24-hour precipitation with a return frequency of once in 25 years, an amount of Waste 012 may be discharged equal to that attributable to the precipitation occurring in excess of the 25-year rainfall event.

6. The discharge of all conservative toxic and deleterious substances, above those levels which can be achieved by a program acceptable to the Board, is prohibited.

7. The discharge of Waste 004 without treatment in the Chevron USA wastewater treatment system is prohibited after November 1, 1987.

D. Provisions

1. The Discharger shall comply with the limitations, prohibitions, and other provisions of this Order immediately upon its adoption by the Board except as noted below.

2. Interim Toxicity Standard

The Discharger shall demonstrate compliance with Effluent Limitation A.8. in accordance with the following time schedule:

Method	Deadline
Flow-through bioassay using three-spine stickleback	July 1, 1987
Static bioassay using rainbow trout	July 1, 1987
Flow-through bioassay using rainbow trout	October 1, 1987

3. The Discharger shall achieve compliance with Prohibition C.2. at the earliest possible date that is consistent with environmental improvements in Wildcat Creek.

4. Effluent Dispersion Study

The Discharger shall conduct a dispersion study to determine the actual dilution and transport of Waste 003 achieved by discharge through the deep water outfall. The study shall be conducted during high and low effluent (Waste 003) flows, and strong and weak tidal cycles during periods of high and low Delta inflow. [See 40 CFR 125.61(a)]. Receiving water monitoring stations shall also be sited as part of the study. The discharger shall implement the dispersion study according to the following time schedule:

Task	Deadline
Submit a plan for implementing the dispersion study for approval by the Executive Officer.	July 1, 1987
Implement the dispersion study.	August 1, 1987
Submit the results of the approved study.	April 1, 1988

5. The Discharger shall demonstrate compliance with Prohibition C.6. in accordance with the following programs:

Toxic Substance Control Program

The Discharger shall implement forthwith all reasonable treatment and source control measures to limit the discharge of the constituents arsenic, cadmium, chromium, copper, cyanide, lead,

mercury, nickel, selenium, and zinc to the maximum extent practicable. The program shall include compliance with the following tasks and time schedule:

Task	Deadline
Determine sources and develop a source control and treatment analysis program for nickel upstream of No. 1 Separator, for chromium upstream of No. 13 Separator, and for zinc upstream of No. 13 and CPI Separator.	July, 1, 1987
Begin implementing a control strategy acceptable to the Executive Officer for chromium, nickel, and zinc in Waste 001 that incorporates the findings from the previous task and demonstrates that all reasonable source control measures will be implemented at the earliest practicable date	October 1, 1987
Determine sources and develop a source control and treatment analysis program for metals in Waste 004.	Preliminary report July 1, 1987
	Final report January 1, 1988
Determine sources and develop a source control and treatment analysis program for selenium in Waste 001.	Preliminary report October 1, 1987
	Final report January 1, 1988
Begin implementing a control strategy acceptable to the Executive Officer for selenium in Waste 001 and metals in Waste 004 that incorporates the findings from the previous tasks and demonstrates that all reasonable source control measures will be implemented at the earliest practicable date	April 1, 1988

In the development of control strategies consideration must be given to:

a) complete elimination of the source, and

b) control to a level that would result in final effluent quality meeting the 1986 Basin Plan shallow water effluent limits.

Based on the results of the Toxic Substance Control Program, this permit shall be reopened and modified pursuant to 40 CFR 122.62 and 124.5 to incorporate the results of the source control and treatment program.

In the event that the Discharger's control strategies are not effective or that the Discharger's progress towards implementing those strategies is not effective, this permit shall be reopened and modified to include effluent limits pursuant to 40 CFR 122.62 and 124.5.

Effluent Characterization and Toxicity Reduction Evaluation (TRE)

The Discharger shall demonstrate that all sources of toxic pollutants are being controlled through application of all reasonable treatment and source control measures for long-term control of effluent toxicity according to the following time schedule:

Task	Deadline
Continue effluent characterization studies which were begun as a part of the deepwater-outfall project EIR and submit quarterly progress reports beginning	July 1, 1987
Complete effluent characterization studies.	January 1, 1988
Begin evaluation of sources of toxicity and alternative treatment strategies.	April 1, 1988
Submit quarterly progress reports beginning	July 1, 1988
Submit final plan for control of toxicity acceptable to the Board.	July 1, 1989
Complete toxicity control program.	July 1, 1991

The following discussion amplifies the description of tasks in the above time schedule.

Effluent characterization studies should include: the determination of the no observable effect concentration (NOEC) using incipient lethal bioassays of striped bass, sanddabs, dungeness crab, and herring; the determination of the NOEC using early life stage/subchronic bioassays for two members of the mollusc family, for the alga Laminaria saccharina, the fish Menidia beryllina, an echinodium species, and three of the five listed resident species of concern (striped bass, prawn, Neomysis, dungeness crab, and herring); the evaluation of effluent variability using sensitive species; use of a reference toxicant during the variability testing phase; and determination

of the NOEC of the most sensitive species using San Pablo Bay water as the diluent. In the event that prescribed species are not available or the prescribed tests are unsuccessful due to circumstances beyond the control of the discharger, alternative species or tests may be substituted or the final completion date may be extended upon approval of the Executive Officer. The effluent characterization studies shall if practical identify compounds or groups of compounds which may cause effluent toxicity. The program shall also be designed or modified to conform with the Board's Effluent Toxicity Characterization Program Proposed Guidelines, May 1987 and/or any revisions or modifications to the guidelines.

The TRE shall include an evaluation of sources of effluent toxicity and specific toxic components. Alternative treatment and source reduction strategies shall be developed and evaluated. Whole-effluent treatment strategies shall also be evaluated in the event that source control and treatment strategies do not successfully result in attainment of the target effluent limits. The final plan shall include the design and engineering of the most effective source control and treatment processes.

6. The Discharger shall study the potential for accumulation of metallic and organic compounds present in Waste 003 in San Francisco Bay organisms known or suspected to accumulate these compounds. These compounds should be analyzed in Waste 003 and in the tissue of test organisms exposed to Waste 003 to determine bioconcentration factors that can then be used to predict concentrations of these compounds in organisms that may be exposed to Waste 003 in the receiving water. An implementation plan shall be submitted by July 1, 1987, and implementation shall commence no later than 30 days after approval of the plan by the Executive Officer.

7. The Discharger shall monitor sediments in Castro Cove and in areas adjacent to the Waste 003 deep water outfall including the shallow area north of Pt. San Pablo. The sediments shall be monitored for metallic and organic compounds twice per year for at least three years. Benthic organism monitoring shall also be conducted at the same times. An implementation plan shall be submitted by July 1, 1987, and implementation shall commence no later than 30 days after approval of the plan by the Executive Officer.

8. A comprehensive surveillance program to document the changes in fish and crustacean uses in the area affected by the Waste 003 deep water outfall shall be conducted. The program should include the use of otter trawls, gill nets, ring nets, or other appropriate sampling equipment on an appropriate time basis to document fisheries use patterns. The purpose of this survey is to determine any alteration in use patterns by migrating fish, fish spawning in the area, or crustaceans. An implementation plan shall be submitted by July 1, 1987, and implementation shall commence no later than 30 days after approval of the plan by the Executive Officer.

9. The Discharger shall study the avoidance/attraction response of resident and migratory fish and other aquatic life to Waste 003. These studies should address the strength and duration of the response, and whether there is short term or long term olfactory impairment. Laboratory studies should be designed in conjunction with field studies. An implementation plan shall be submitted by July 1, 1987, and implementation shall commence no later than 30 days after approval of the plan by the Executive Officer.

10. Chevron USA Inc. shall develop and submit A Best Management Practices (BMP) program to the Board by January 1, 1988. Chevron Chemical Company has already prepared and submitted a BMP program plan to the Board under the terms of Order No. 85-27. This submittal was dated February 20, 1986. An update of this program shall be submitted to the Board by January 1, 1988. The BMP program shall be consistent with the EPA regulations 40 CFR 125, Subpart K and the general guidance contained in the "NPDES Best Management Guidance Document", EPA Report No. 600/9-79-045, December 1979 (revised June 1981). The BMP program shall specifically address segregating non-contaminated stormwater from the wastewater treatment system. A BMP program acceptable to the Executive Officer shall be implemented by July 1, 1988.

11. Chevron Chemical Company shall provide and maintain stand-by capability and an alternative power source to assure timely operation of the stormwater surge pumps under all emergency conditions.

12. This Order shall serve as a National Pollutant Discharge Elimination System permit pursuant to Section 402 of the Federal Water Pollution Control Act, or amendments thereto, and shall take effect at the end of ten days from the date of hearing provided the Regional Administrator, EPA, has no objections.

13. This permit shall be modified or alternatively revoked and reissued to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(c), and (d), 303, 304(b)(2), and 307(a)(2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:

    (a) Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or,

    (b) Controls any pollutant not limited in the permit.

    The permit as modified or reissued under this paragraph shall also contain any other requirements of the Act then applicable.

14. The Discharger shall comply with the attached self-monitoring program as adopted by the Board and as may be amended by the Board pursuant to EPA regulations 40 CFR 122.62, 122.63, and 124.5. Chevron USA, Inc. and Chevron Chemical Company shall separately comply with the provisions which are pertinent to each facility,

15. Pursuant to EPA regulations 40 CFR 122.44, 122.62, and 124.5, this permit may be modified prior to the expiration date to include effluent limitations for toxic constituents determined to be present in significant amounts in the discharge through a more comprehensive monitoring program included as a part of this Order.

16. All applications, reports, or information submitted to the Board shall be signed and certified pursuant to EPA regulations 40 CFR 122.41(k).

17. Pursuant to EPA regulations 40 CFR 122.42(a), the discharger must notify the Board as soon as it knows or has reason to believe (1) that they have begun or expect to begin, use or manufacture a pollutant not reported in the permit application, or (2) a discharge of a toxic pollutant not limited by this permit has occurred, or will occur, in concentrations that exceed the specified limits included in 40 CFR 122.42(a).

18. Order Nos. 85-26, 85-27, 86-6, and 86-72 are hereby rescinded.

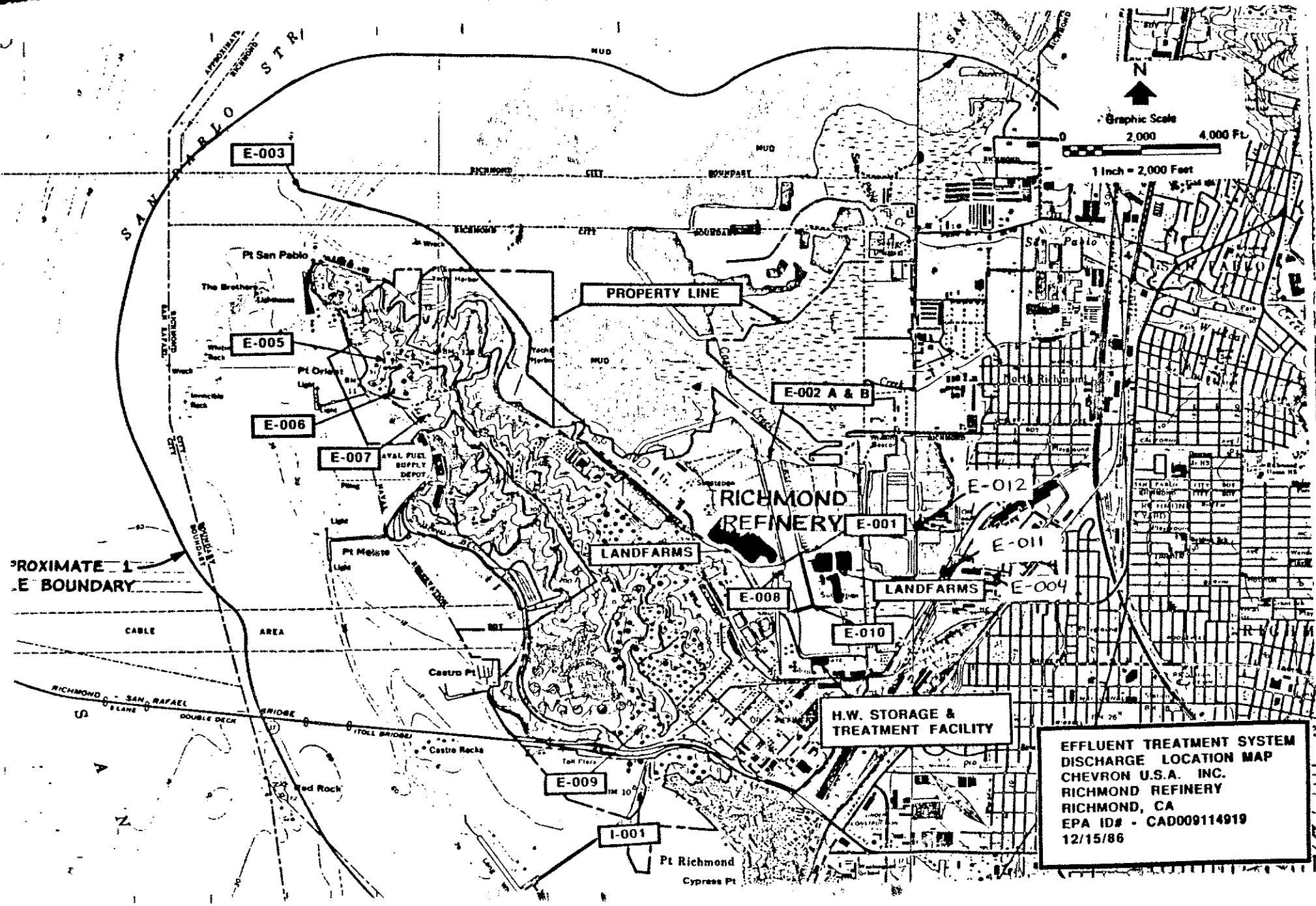
19. This Order includes all items of the attached "Standard Provisions, Reporting Requirements and Definitions" dated December 17, 1986.

20. This Order expires on July 1, 1992 and the Discharger must file a Report of Waste Discharge in accordance with Title 23, California Administrative Code, not later than 180 days in advance of such date as application for issuance of new waste discharge requirements.

I, Roger B. James, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on June 17, 1987.

ROGER B. JAMES
Executive Officer

Attachments:
Location Map
Standard Provisions, Reporting
Requirements and Definitions dated December 17, 1986.
Self-Monitoring Program


E-003
E-005
E-006
E-007
E-002 A & B
E-012
E-001
E-011
E-004
E-008
E-010
E-009
I-001
PROPERTY LINE
RICHMOND REFINERY
LANDFARMS
LANDFARMS
H.W. STORAGE & TREATMENT FACILITY
Pt San Pablo
Pt Orient
Pt Molate
Castro Pt
Castro Rocks
Red Rock
Pt Richmond
Cypress Pt
N
Graphic Scale
0 2,000 4,000 Ft.
1 Inch = 2,000 Feet
EFFLUENT TREATMENT SYSTEM
DISCHARGE LOCATION MAP
CHEVRON U.S.A. INC.
RICHMOND REFINERY
RICHMOND, CA
EPA ID# - CAD009114919
12/15/86

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM
FOR

CHEVRON USA, INC., RICHMOND REFINERY,
CHEVRON CHEMICAL CO., RICHMOND PLANT, AND
GENERAL CHEMICAL CORP., RICHMOND WORKS

NPDES NO. CA0005134

ORDER NO. 87-073

CONSISTS OF

PART A (dated December 1986)

AND

PART B

PART B

I. DESCRIPTION OF SAMPLING STATIONS

A. INFLUENT

Station	Description
I-001	At any point in the intake line supplying once-through cooling water such that the sample is representative of the intake water.

B. EFFLUENT

Station	Description
E-001 Process Water Effluent	At any point in the discharge line from the Deep Water Discharge Pump Sump such that the sample is representative of the treated process water.
E-002 Segregated	At any point from the discharge of Waste 002 in the 250-foot Channel.
E-003 Combined Effluent	At any point in the discharge line from the Deep Water Discharge Pump Sump such that the sample is representative of the combined discharge of Waste 001 and Waste 004. E-003 will be equivalent to E-001 when Waste 004 is routed to the Chevron USA wastewater treatment system.
E-004	At any point in the outfall from the incinerator containing Waste 004 between where it is mixed with Waste 001 and the point at which all wastewater from the incinerator is present.
E-005	At any point in the discharge line from sump #380 such that the sample is representative of the stormwater runoff.
E-006	At any point in the discharge line from sump #381 such that the sample is representative of the stormwater runoff.
E-007	At any point in the discharge line from the "horse pasture sump" such that the sample is representative of the stormwater runoff.
E-008	To be determined.
E-009	To be determined.
E-010	To be determined.

Station	Description
E-011	At any point in the outfall from the Castro Acres Surge Pond containing Waste 011 between the point of discharge and the point at which all waste tributary to that outfall is present.
E-012	At any point in the outfall from the Fertilizer Plant containing Waste 012 between the point of discharge and the point at which all waste tributary to that outfall is present.

C. RECEIVING WATERS

Station	Description
C-001	At a point in the drainage ditch, immediately west of Castro Street culvert.
C-002	At a point in the drainage ditch, located immediately upstream of the tide gates adjoining Castro Creek.

Others to be determined.

D. SEDIMENTS

Station	Description

To be determined.

E. LAND OBSERVATIONS

Station	Description
P-1	At the point of discharge of Waste 011 to the drainage ditch tributary to Castro Creek.
P-3	At the point of discharge of Waste 012 to the drainage ditch tributary to Castro Creek.

F. RAINFALL

Station	Description
R-1	The nearest official recording National Weather Service rainfall station or other station acceptable to the Executive Officer.

II. MISCELLANEOUS REPORTING

A. The Discharger shall record the rainfall on each day of the month.

B. The discharger shall determine the stormwater runoff/ballast water allocation (daily & monthly) for its discharge using the method described in attached Form A. Form A shall be submitted with the monthly self-monitoring report. The daily maximum allocation must be computed for each day Waste 001 is monitored.

C. The Discharger shall retain and submit (when requested) the following be information concerning the monitoring program for organic and metallic pollutants.

   a. Description of sample stations, times, and procedures.

   b. Descriptionofsamplecontainers,storage,and holding time prior to analysis.

   c. Quality assurance procedures together with any test results for replicate samples, sample blanks, and any quality assurance tests, and the recovery percentages for the internal and surrogate standards.

D. The Discharger shall submit in the monthly self-monitoring report the metallic & organic test results together with the detection limits (including unidentified peaks). All unidentified (non-Priority Pollutants) peaks detected in the EPA 624 and 625 test methods shall be identified and semi-quantified. Hydrocarbons detected at < 10 ug/l based on the nearest internal standard may be appropriately grouped and identified together as aliphatic hydrocarbons, aromatic hydrocarbons, and unsaturated hydrocarbons. All other hydrocarbons detected at >10 ug/l based on the nearest internal standard shall be identified and semi-quantified.

E. Ballast water treated and discharged as part of Waste 001 shall be metered and the volume recorded in attached Form A for each calendar day. The 30-day average shall be the sum of the daily valuesin a calendar month divided by the number of days in that month. Ballast-water allocations shall be calculated by multiplying the volume of ballast water, determined above by the appropriate concentration listed under Effluent Limitation A.2. inthe permit.

F. The Discharger shall submit a sketch showing the locations of all ponds, treatment facilities, and points of waste discharge. This shall be updated by the discharger as changes occur.

G. For any discharge at E-011 or E-012 sufficient rainfall data acceptable to the Executive Officer shall be submitted by the Discharger showing at least hourly rainfall rates to define a rainfall event that allows discharge. Rainfall data shall be

submitted of at least 24 continuous hours to define that a rainfall event exceeding a "25-year, 24-hour" rainfall event has occurred.

H. Discharge of Wastes 011 and 012 shall be reported to the Board by telephone immediately following the commencement of discharge.

III. SCHEDULE OF SAMPLING AND ANALYSIS

A. The schedule of sampling and analysis shall be that given in Table 1 (attached).

B. Sample collection, storage, and analyses shall be performed according to the latest 40 CFR Part 136 or other methods approved and specified by the Executive Officer.

IV. MODIFICATIONS TO PART A

A. Exclude paragraph D.3., E.4., F.3., and F.5.

B. Paragraph D.2.a. shall be modified as follows:

Composite samples of effluent shall be collected on random weekdays and on any day when substantial changes in flow occur during dry weather conditions.

I, Roger B. James, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Board's ResolutionNo. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Order No. 87-073.

2. Is effective on the date shown below.

3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the Discharger and revisions will be ordered by the Executive Officer, pursuant to 40 CFR 122.62 and 124.4.

ROGER B. JAMES
EXECUTIVE OFFICER

Effective Date : June 27, 1987

Attachments:
Table 1
Form A

TABLE 1

SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	E-001		E-002		E-003		E-E005	E006	E007	E-008 E-009	E-010	I-001	
TYPE OF SAMPLE	C-24	G	C-24	G	C-24	G	G	G	G	G	G	C-24	G
Flow Rate (mgd)	Cont												
BOD, 5-day, 20° C, or COD (mg/l & kg/day)	W												
Chlorine Residual & Dosage (mg/l & kg/day)													
Settleable Matter (ml/l-hr. & cu. ft./day)		W											
Total Suspended Matter (mg/l & kg/day)	W				M								
Oil and Grease (mg/l & kg/day)		W (1)				W (1)	E	E	E	E	E		
Fish Toxicity					W								
Ammonia Nitrogen (mg/l & kg/day)	W				M								
Chloride (mg/l)	M												
pH (units)			(2) Cont		(2) Cont		E	E	E	E	E		
Dissolved Oxygen (mg/l and % Saturation)						W							
Temperature (°C)			Cont		Cont								
Sulfides Total (mg/l)		W											
Sulfides (if DO<5.0 mg/l) Total & Dissolved (mg/l)													
Arsenic (mg/l & kg/day)	M												
Cadmium (mg/l & kg/day)	M												
Chromium, Total (mg/l & kg/day)	M												
Copper (mg/l & kg/day)	M												
Cyanide (mg/l & kg/day)	M												
Silver (mg/l & kg/day)	M												
Lead (mg/l & kg/day)	M												
Aluminum (mg/l & kg/day)	M												
Cobalt (mg/l & kg/day)	M												

TABLE 1 (continued)

SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	E-001		E-002		E-003		E005	E006	E007	E-008 E-009	E-010	I-001	
TYPE OF SAMPLE	C-24	G	C-24	G	C-24	G	G	G	G	G	G	C-24	G
Mercury (mg/l & kg/day)	M												
Nickel (mg/l & kg/day)	W												
Zinc (mg/l & kg/day)	W												
Phenolic Compounds (mg/l & kg/day)	W												
All Applicable Standard Observations							E	E	E	E	E		
Bottom Sediment Analyses and Observations													
Vanadium (mg/l &kg/day)	M												
Total Organic Carbon (TOC) (mg/l &kg/day)	W		W				E	E	E	E	E	W	
Hexavalent Chromium (mg/l & Kg/day)	W												
Unionized Ammonia (as N)													
Selenium (mg/l & kg/day) (9)	W												
Volatile Organics (5)		2Y(7)											
Acid Base/Neutral Organics (6)		2Y(7)											
Polynuclear Aromatic Hydrocarbons (8)	M												

TABLE 1 (Continued)

SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	E-011		E-012		Interim E-004(10)		Final (10) E-004		C-001 C-002		R	P-1 P-3	
TYPE OF SAMPLE	C	G	C	G	C-24	G	C-24	G	G		O	O	
Mercury (mg/l & kg/day)					M								
Nickel (mg/l & kg/day)					M								
Zinc (mg/l & kg/day)		E			M								
Phenolic Compounds (mg/l & kg/day)					M								
All Applicable Standard Observations									E			E	
Bottom Sediment Analyses and Observations													
Total Ident. Chlor. Hydrocarbons (mg/l & kg/day)													
Un-ionized ammonia (mg/l & kg/day)									E				
Rainfall depth and duration											D		
Total Pesticides ug/l & g/day)		E			W		W						
Total Ordanic Carbon (mg/l & kg/day)		E			W								
Selenium (9) (mg/l & kg/day)					M								
Diofolatan (ug/l & g/day)		E			W								
(Orthene (ug/l & g/day)					W								
paraquat (ug/l & g/day					4/Y								
Toxaphene (ug/l & g/day)					4/Y								
Captan (ug/l & g/day)					4/Y								
Chlorodane (ug/l & g/day)					4/Y								
Benzene (ug/l & g/day)		E											
Toluene (ug/l & g/day)		E			M(4)								
Lindane (ug/l g/day)		E											
Sevin (ug/l & g/day)		E											
BHC (ug/l & g/day)		E											
Trichlorethylene (ug/l & g/day)		E											
Methylene chloride (ug/l & g/day)		E			M(4)								
Volatile Organics (5)					(4) 2/Y								
Acid/Base/Neutral Organics (6)					(4) 2/Y								

TABLE 1 (Continued)

SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	E-011		E-012		Interim E-004 (10)		Final (10) E-004		C-001 C-002		R	P-1 P-3	
TYPE OF SAMPLE	C	G	C	G	C-24	G	C-24	G	G		O	O	
Flow Rate (mgd)	E (3)		E (3)		D								
BOD, 5-day, 20°C, or COD (mg/l & kg/day)					W								
Chlorine Residual & Dosage (mg/l & kg/day)													
Settleable Matter (ml/l-hr. & cu. ft./day)						W							
Total Suspended Matter (mg/l & kg/day)				E	W								
Oil and Grease (mg/l & kg/day)													
Coliform (Total or Fecal) (MPN/100 ml) per req't													
Fish Tox'y 96-hr. TL % Surv'l in undiluted waste		E		E	M								
Ammonia Nitrogen (mg/l & kg/day)				E	W								
Nitrate Nitrogen (mg/l & kg/day)				E	M								
Nitrite Nitrogen (mg/l & kg/day)					M								
Total Organic Nitrogen (mg/l & kg/day)				E	M								
Total Phosphate (mg/l & kg/day)				E	M								
Turbidity (Jackson Turbidity Units)													
pH (units)		E		E	cont				E				
Dissolved Oxygen (mg/l and % Saturation)									E				
Temperature (°C)					cont								
Apparent Color (color units)													
Secchi Disc (inches)													
Sulfides Total & Dissolved (mg/l)					W				E				
Arsenic (mg/l & kg/day)		E			M								
Cadmium (mg/l & kg/day)													
Chromium, Total (mg/l & kg/day)		E			M								
Copper (mg/l & kg/day)		E			M								
Cyanide (mg/l & kg/day)													
Silver (mg/l & kg/day)													
Lead (mg/l & kg/day)					M								

LEGEND FOR TABLE 1

TYPES OF SAMPLES	TYPES OF STATIONS
G = grab sample	I = intake stations
C-24 = composite sample - 24-hour	E = waste effluent stations
Cont = continuous sampling	C = receiving water stations
O = observation	B = bottom sediment stations

FREQUENCY OF SAMPLING

E = each occurence	M = once each month
D = once each day	2M = every 2 months
W = once each week	Y = once each year
2/W = 2 days per week	2Y = twice each year
	cont = continuous

FOOTNOTES FOR TABLE 1

(1) Oil and grease sampling shall consist of 3 grab samples taken at 2 hour intervals during the sampling day, with each grab being collected in a glass container. The entire volume of each sample shall be composited prior to analysis. Each glass container used for sample collection or mixing shall be thoroughly rinsed with solvent rinsings as soon as possible after use, and the solvent rinsings shall be added to the composite wastewater sample for extraction and analysis.

(2) Daily minimum and maximum shall be reported.

(3) The volume of wastewater discharged shall be estimated each time a sample is taken.

(4) The sample shall consist of two grab samples, one obtained at the beginning of the day shift and one obtained approximately eight hours later at the end of the day shift. The analytical laboratory shall remove flow-proportioned volumes from each sample vial or container for the analysis.

(5) Volatile Organic Toxic Pollutants shall be analyzed using EPA Method 624 of the July, 1982, Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057.

(6) Acid and Base/Neutral Extractable Organic Toxic Pollutants shall be analyzed using EPA Method 625 of the July, 1982, Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057.

(7) Grab samples shall be collected coincident with samples collected for the analysis of the regulated parameters. In addition, the grab samples must be collectedinglass containers.

(8) Polynuclear Aromatic Hydrocarbons shall be analyzed using EPA Method 610 of the July, 1982, Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057. Note that the samples must be collected in amber glass containers. These samples shall be collected coincident with samples collected for the analysis of the regulated parameters. An automatic sampler which incorporates glass sample containers and keeps the samples refrigerated at 4 ^{o}C and protected from light during compositing may be used. The the 24-hour composite samples may consist of eight grab samples collected at three-hour intervals. The analytical laboratory shall remove flow-proportioned volumes from each sample vial or container for the analysis.

(9) Selenium must be analyzed only by the atomic absorption, gaseous hydride procedure (EPA MethodNo. 270.3 / Standard Method No. 303E).

(10) Interim requirements apply until Waste 004 is routed to the Chevron USA wastewater treatment system. Final requirements apply after Waste 004 is routed to the Chevron USA wastewater treatment system.

FORM A

STORMWATER/BALLAST WATER ALLOCATION PROCEDURE

This procedure uses a bankbook to inventory stormwater. Any stormwater in excess of the estimated processed stormwater is inventoried. Stormwater allocations are calculated using the actual processed stormwater developed in the attached table.

Definitions:

Dry Weather Season - The months of June to September exclusive of a one-week period following any rainstorm.

Estimated Dry Weather Process Wastewater Flow - The average effluent flowrate during the previous dry weather season.

Stormwater Runoff - The product of the inches of rainfall and the runoff factor.

Estimated Processed Stormwater - The difference between the actual effluent flowrate and the ballast water plus dry weather flowrate.

Stormwater Bankbook - Calculated inventoried stormwater.

Actual Process Stormwater - If the stormwater bankbook is not zero, the actual processed stormwater equals the estimated flow. If the bankbook is zero, the actual processed stormwater is equal to the stormwater runoff for that day plus the bankbook for the previous day.

STORMWATER/BALLAST WATER ALLOCATION PROCEDURE

	(A) Rainfall (in.)	(B) Stormwater Runoff (MGal/D)	(C) Effluent Flow (MGal/D)	(D) Dry Weather Effluent Flow (MGal/D)	(E) Estimated Processed Stormwater (MGal/D)	(F) Stormwater Bankbook (MGal)	(G) Actual Processed Stormwater (MGal/D)	(H) Ballast Water (MGal/D)
						Previous Month's Bankbook=		
1								
2								
3								
.								
.								
.								
30								
TOTAL								
AVERAGE								
MAXIMUM								

Column (B) = Column (A) X Runoff Factor

Column (E) = Column (C) - Column (D) - Column (H).

Column (F): Column (F) = Column (F)(Previous Day) + Column (B) - Column (E).
Column (F) = 0 if Column (F) <0.

Column (G): If Column (F) >0, then Column (G) = Column (E).
If Column (F) = 0, then Column (G) = Column (B) + Column (F) previous day.

DATE	MAXIMUM DAILY LIMITS						
	BOD (KG/D)	TSS (KG/D)	(KG/D)	O&G (KG/D)	PHENOL (KG/D)	TOTAL CHROME (KG/D)	HEX. CHROME (KG/D)

Maximum Daily Limit = Effluent Limit A.1. (Daily Max in kg/day) + Stormwater Allocation (Daily Max)

Stormwater Allocation= Effluent Limit A.2. (Daily Max in mg/l) x Daily Processed Stormwater (in mgd) x 3.785 l/gal

Date	Rainfall (Inches)	Storm Runoff Flow (Inches x Runoff Factor) = Gallons	Ballast Flow in gallons
1-2			
2-3			
3-4			
4-5			
5-6			
6-7			
7-8			
8-9			
9-10			
10-11			
11-12			
12-13			
13-14			
14-15			
15-16			
16-17			
17-18			
18-19			
19-20			
20-21			
21-22			
22-23			
23-24			
24-25			
25-26			
26-27			
27-28			
28-29			
29-30			
30-31			
31-1			
Total			
Monthly Average			

MONTH:

YEAR:

A.1. Total Effluent

Monthly Average Allocation Factor + Effluent Limits = Limit (Kg/day)

Storm Runoff+Ballast Water Flow (kg /1000 Gals.) = (kg /day)

(expressed in thousand Gals/day)

30-Day Average Limitation (Kg/day)							
BOD_5		x	0.098	=	+		=
TSS		x	0.079	=	+		=
TOC		x	0.22	=	+		=
COD		x	0.68	=	+		=
O&G		x	0.03	=	+		=
PHENOL		x	0.00064	=	+		=
TOTAL CHROME		x	0.00079	=	+		=
HEX CHROME		x	0.00011	=	+		=